

InStep

A NEWSLETTER FOR ROLE MODELS

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Minister's Message



I am very pleased to present this issue of *InStep* which takes a look at *More Than Just Numbers*, the report of the Canadian Committee on Women in Engineering.

More Than Just Numbers is an important document. It contains a carefully researched examination of the roots of sexism in engineering. It has clearly identified issues facing women engineers. It has identified realistic ways to implement recommendations, complete with strategies and deadlines.

More Than Just Numbers uses a

model for change that is gradually becoming more familiar — it not only talks the talk, it gives everybody working in engineering a framework for **action**: a way to walk the talk.

From this, other professions can learn to walk the talk.

This report should be especially interesting to you, Stepping Stones role models. *More Than Just Numbers* concludes that a big part of eliminating barriers to women in engineering starts in school. So Alberta is, in some ways, way ahead of the times — thanks to your commitment to the girls in this province and to your professions.

I hope you find this issue of *InStep* as interesting as I did. Happy reading.

Elaine McCoy, Q.C.
Minister Responsible for
Women's Issues

Did You Know?

1918: Margaret Newton becomes one of the first two women to graduate from McGill University with a degree in agriculture. She went on to become a world expert on wheat stem rust.

1927: Elsie Gregory MacGill becomes the first woman to graduate with a degree in electrical engineering from the University of Toronto. In 1929, she becomes the first woman to receive a master's degree in aeronautics from the University of Michigan, which she used to design the Maple Leaf trainer aircraft.

1983: Canadian astronomer and columnist Dr. Helen Sawyer Hogg-Prestley becomes the first Canadian to receive the Klumper-Roberts Award for her contributions to the public's understanding of astronomy. Minor planet no. 2917 is named Sawyer-Hogg in her honour.

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Women in Engineering: The Numbers Don't Add Up

We expect it now: the fantastic report with the fantastic research and the fantastic recommendations. Then the fantastic report gathers dust until it is only a distant memory to most Canadians. Well, not this time.

The Canadian Committee on Women in Engineering approached its work from a simple premise: that there is no physical or intellectual reason women can't be engineers. Yet women represented just under four per cent of registered professional engineers in Canada in 1991. They also found that enrolment of women in engineering is lagging far behind that of other non-traditional occupations for women (like medicine and law). So the committee set out to "uncover the social and cultural barriers responsible for the underrepresentation of women in engineering and to design bridges that will bring them as full participants into the profession."

The committee provides a clear picture of the barriers to women's participation in engineering (see sidebar) and a set of ambitious recommendations. For instance, in the next **five years**, it wants:

- girls and boys pursuing mathematics and science in equal numbers, especially in advanced levels through high school.
- women comprising 25-35 per cent of first-year university engineering students, 20 per cent of master's students, 10 per cent of doctoral students and five per cent of the professorate in engineering faculties across Canada.
- women comprising at least 18 per cent of graduates from undergraduate programs.
- women engineers in senior management positions and on boards of directors of companies employing engineers.
- more women engineers elected members of council and appointed members of committees of associations of professional engineers.

Easier said than done. Just about everybody connected with education and/or engineering has been applying themselves to this awesome task. For instance, Alberta Education continues to try to interest girls in science within its mandatory Careers and Technology Studies course. The Women's Secretariat

attracting and keeping women in engineering. The two faculties of engineering at Alberta universities have already complied with many of the targets, within the limits of their budget. Both have sexual harassment policies, employment equity policies, role model programs, gender sensitivity programs, and so on. Willingness aside, a big part of their problem is a lack of funding.

The Association of Professional Engineers, Geologists and Geophysicists of Alberta is equally concerned about the fate of the profession.

Their mission, as defined in *More Than Just Numbers*, includes all sorts of programs for all members and engineers-in-training to ensure full acceptance of women engineers in the profession, and to eradicate harassment and discrimination against women members.

APEGGA joins other stakeholder groups and institutions in sorting through the findings and recommendations.

One thing is certain: change won't come cheap. But, says Monique Frize, Chair of the Canadian Committee on Women in Engineering, Canada will either spend now or pay later.

"Are we producing the kind of engineer that will be needed in the 21st Century," Frize asked at the Eighth Canadian Conference on Engineering Education recently. "The kind of engineer that will adapt to a rapidly changing world order and economy?" Frize's query is echoed by Micheline Bouchard, incoming president of the Canadian Council of Professional Engineers. At a forum in Montreal earlier this year, she stated: "The engineering profession will have to adapt more values that are said to be feminine. Already engineers' social awareness is allowing the emergence of new values, such as protection of the environment, health and occupational safety. Engineers are regularly called upon to work in multi-

offers Stepping Stones. The Science Alberta Foundation, a non-profit organization that was established to promote science education, has many innovative programs. Both universities offering engineering in Alberta (Calgary and Edmonton) have taken profound action in trying to create an equitable and friendly atmosphere for women in their respective engineering faculties and in the larger university community.

In some important ways, Alberta institutions are on the leading edge in



disciplinary teams . . . They can no longer sell products and services based on technical know-how. They must understand the needs of their environment and explain how they will meet those needs."

For the time being, all Monique Frize wants is for the stakeholders to take a good hard look at the report and its recommendations. "We need to make sure that people start to look at the baseline," says Frize. "What are we doing right now? What should we be doing in the future? What do we disagree with? What is not in the report that should be there?"

"The document does not have anything revolutionary," says Frize. "These are all things that should have been there 20 or 30 years ago. Women are making progress in all other fields. People at the top of the field in engineering recognize the need to make changes. What we're trying to do is get things moving at a grassroots level."

(Copies of *More Than Just Numbers* are available by phoning the Northern Telecom-NSERC Women in Engineering Chair at the University of New Brunswick, (506) 453-4515, or fax (506) 453-4516).

Window of Opportunity Open to Change

Engineering and education officials feel somewhat besieged — with bad press because of engineering's persistent anti-female reputation — but also by the limited success of their initiatives. If all the energy expended so far still leaves a shortfall of women in engineering, what will work?

In addition to research and recommendations, the report, *More Than Just Numbers*, contains a series of no-nonsense targets — **schedules for success** — complete with deadlines with which to measure the implementation of their recommendations. It also assigns responsibility for those targets, major or minor, to specific individuals, groups and institutions (so we'll know exactly who to congratulate — or where to point the finger — in five years).

For instance, faculties of education are asked to implement a number of changes, including courses in equity and gender-related issues for all education students,

mechanisms to monitor the participation and success of young women in school, stronger guidance counselling system for female students, role model programs, and so on.

Universities are asked to develop initiatives like:

- harassment policies and procedures by 1993;
- employment and pay equity programs by 1993;
- gender inclusive language policy by 1993;
- gender-sensitivity programs for faculty, staff and students by 1995;
- childcare referral system by 1995 and on-site childcare facilities by 1997;
- introductory, transitional and qualifying courses for non-traditional students by 1994;
- flexible admission policies by 1994;
- part-time undergraduate engineering programs by 1995; and so on.

What Keeps Women Out of Engineering Classrooms

In April, 1992, *More Than Just Numbers*, the report of the Canadian Committee on Women in Engineering, was released.

The findings paint a vivid picture of why women avoid engineering. Starting from early childhood, girls are steered away from math and science, are influenced by teachers and counsellors who are often insensitive to gender stereotyping. Since engineering is still considered to be a "male" profession by society in general, and since female math or science teachers are rare, most girls don't even consider engineering to

be an option. The result: very few women graduate high school with advanced math or physics, the prerequisites for entering engineering.

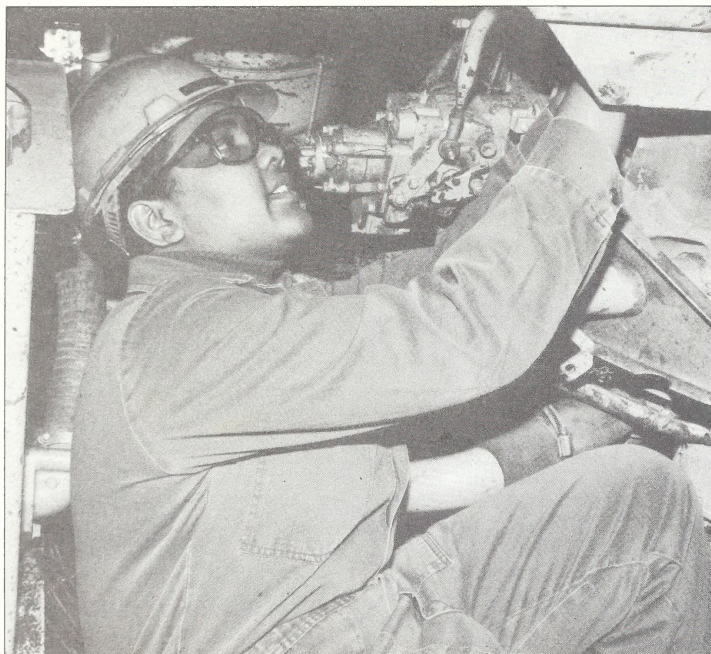
The committee found that the few women who do make it into a faculty of engineering often have difficulty adjusting to the pervasive, and sometimes offensive, "male culture" and to a curriculum that does not reflect women's perspectives. Again, female role models are scarce. Many universities have yet to adopt policies that recognize the difficulties of balancing family responsibilities with the demands of an academic career.

According to *More Than Just Numbers*, the workplace is no better. The study found that women face discrimination in hiring, promotion, job assignments and salary, and experience sexual harassment in the workplace. Employers often do not have policies that enable women to balance work and family.

Meanwhile, experts predict a shortage of engineers in Canada by the year 2000, and the companies who can keep or attract qualified women are going to have a major advantage over those who don't.

WANTED!

New Stepping Stones Role Models



Stepping Stones needs more women working in the trades. Like June Mootoo-Reece, a heavy duty mechanic at Syncrude in Fort McMurray.

"We need more women who go to work in steel-toed boots," says Stepping Stones Provincial Coordinator Janice White. "We have received a significant number of requests from teachers who have students who don't want to go on to traditional post-secondary education.

"These students are looking for immediate work options straight out of high school. The trades offer the best of both worlds — training and good pay. So our target this year is on welders, bricklayers, carpenters, et cetera."

The annual summer Stepping Stones recruitment drive will

hopefully also scoop up women outside the larger centres. Last year's very successful expansion project has resulted in requests for additional role models in Camrose, Fort McMurray, Grande Prairie, Lethbridge, Red Deer, Lloydminster, High River, Rocky Mountain House, Medicine Hat and Wetaskiwin.

Of course, Stepping Stones is always looking for new role models, no matter what their non-traditional occupation is. So, role models, if you know someone willing to inspire young girls the way you do, phone Janice White at 422-4927 by mid-August!

What Do I Need Math For?

Know any girls who "don't have a head for numbers?"

Research indicates that we fail to encourage girls and women to view math as an important part of their education. Yet a decision to avoid math in school can severely limit female horizons in the workplace.

Part of the Alberta government's strategy to interest girls and young women in math is a poster campaign designed to encourage young people, especially girls, to pursue careers in scientific and technical fields. **What Do I Need Math For?** posters have been distributed to high schools, post-secondary institutions, libraries, and career counselling centres across the province. If you'd like a copy of the poster, call Janice White at the Alberta Women's Secretariat at 422-4927 (long distance use the government RITE line).



InStep is published for Stepping Stones Role Models by the Alberta Women's Secretariat
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We invite your comments, suggestions and story ideas.

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